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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/506,518	05/09/2005	Kenneth S. Watkins Jr	PAC-01	2715
7590 Kenneth S Watkins Jr 372 River Drive Dahlonega, GA 30533			EXAMINER NOLAND, THOMAS	
			ART UNIT 2856	PAPER NUMBER
			MAIL DATE 11/23/2007	DELIVERY MODE PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

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<b>Interview Summary</b>	<b>Application No.</b> 10/506,518	<b>Applicant(s)</b> WATKINS JR ET AL.	
	<b>Examiner</b> Thomas P. Noland	<b>Art Unit</b> 2856	

All participants (applicant, applicant's representative, PTO personnel):

(1) Thomas P. Noland. (3) \_\_\_\_\_.

(2) Mr. Kenneth Watkins. (4) \_\_\_\_\_.

Date of Interview: Nov. 20, 2007.

Type: a) ☒ Telephonic b) ☐ Video Conference  
c) ☐ Personal [copy given to: 1) ☐ applicant 2) ☐ applicant's representative]

Exhibit shown or demonstration conducted: d) ☐ Yes e) ☒ No.  
If Yes, brief description: \_\_\_\_\_.

Claim(s) discussed: proposed amended claims 1, 17 and 25 + previously presented claim 39.

Identification of prior art discussed: Saylak et al.

Agreement with respect to the claims f) ☐ was reached. g) ☒ was not reached. h) ☐ N/A.

Substance of Interview including description of the general nature of what was agreed to if an agreement was reached, or any other comments: See Page 3 and attached copies of proposed amendments faxed 11/19/07 and 11/20/07.

(A fuller description, if necessary, and a copy of the amendments which the examiner agreed would render the claims allowable, if available, must be attached. Also, where no copy of the amendments that would render the claims allowable is available, a summary thereof must be attached.)

THE FORMAL WRITTEN REPLY TO THE LAST OFFICE ACTION MUST INCLUDE THE SUBSTANCE OF THE INTERVIEW. (See MPEP Section 713.04). If a reply to the last Office action has already been filed, APPLICANT IS GIVEN A NON-EXTENDABLE PERIOD OF THE LONGER OF ONE MONTH OR THIRTY DAYS FROM THIS INTERVIEW DATE, OR THE MAILING DATE OF THIS INTERVIEW SUMMARY FORM, WHICHEVER IS LATER, TO FILE A STATEMENT OF THE SUBSTANCE OF THE INTERVIEW. See Summary of Record of Interview requirements on reverse side or on attached sheet.

Examiner Note: You must sign this form unless it is an Attachment to a signed Office action.

See page 3  
Examiner's signature, if required

## Summary of Record of Interview Requirements

### Manual of Patent Examining Procedure (MPEP), Section 713.04, Substance of Interview Must be Made of Record

A complete written statement as to the substance of any face-to-face, video conference, or telephone interview with regard to an application must be made of record in the application whether or not an agreement with the examiner was reached at the interview.

### Title 37 Code of Federal Regulations (CFR) § 1.133 Interviews Paragraph (b)

In every instance where reconsideration is requested in view of an interview with an examiner, a complete written statement of the reasons presented at the interview as warranting favorable action must be filed by the applicant. An interview does not remove the necessity for reply to Office action as specified in §§ 1.111, 1.135. (35 U.S.C. 132)

#### 37 CFR §1.2 Business to be transacted in writing.

All business with the Patent or Trademark Office should be transacted in writing. The personal attendance of applicants or their attorneys or agents at the Patent and Trademark Office is unnecessary. The action of the Patent and Trademark Office will be based exclusively on the written record in the Office. No attention will be paid to any alleged oral promise, stipulation, or understanding in relation to which there is disagreement or doubt.

The action of the Patent and Trademark Office cannot be based exclusively on the written record in the Office if that record is itself incomplete through the failure to record the substance of interviews.

It is the responsibility of the applicant or the attorney or agent to make the substance of an interview of record in the application file, unless the examiner indicates he or she will do so. It is the examiner's responsibility to see that such a record is made and to correct material inaccuracies which bear directly on the question of patentability.

Examiners must complete an Interview Summary Form for each interview held where a matter of substance has been discussed during the interview by checking the appropriate boxes and filling in the blanks. Discussions regarding only procedural matters, directed solely to restriction requirements for which interview recordation is otherwise provided for in Section 812.01 of the Manual of Patent Examining Procedure, or pointing out typographical errors or unreadable script in Office actions or the like, are excluded from the interview recordation procedures below. Where the substance of an interview is completely recorded in an Examiners Amendment, no separate Interview Summary Record is required.

The Interview Summary Form shall be given an appropriate Paper No., placed in the right hand portion of the file, and listed on the "Contents" section of the file wrapper. In a personal interview, a duplicate of the Form is given to the applicant (or attorney or agent) at the conclusion of the interview. In the case of a telephone or video-conference interview, the copy is mailed to the applicant's correspondence address either with or prior to the next official communication. If additional correspondence from the examiner is not likely before an allowance or if other circumstances dictate, the Form should be mailed promptly after the interview rather than with the next official communication.

The Form provides for recordation of the following information:

- Application Number (Series Code and Serial Number)
- Name of applicant
- Name of examiner
- Date of interview
- Type of interview (telephonic, video-conference, or personal)
- Name of participant(s) (applicant, attorney or agent, examiner, other PTO personnel, etc.)
- An indication whether or not an exhibit was shown or a demonstration conducted
- An identification of the specific prior art discussed
- An indication whether an agreement was reached and if so, a description of the general nature of the agreement (may be by attachment of a copy of amendments or claims agreed as being allowable). Note: Agreement as to allowability is tentative and does not restrict further action by the examiner to the contrary.
- The signature of the examiner who conducted the interview (if Form is not an attachment to a signed Office action)

It is desirable that the examiner orally remind the applicant of his or her obligation to record the substance of the interview of each case. It should be noted, however, that the Interview Summary Form will not normally be considered a complete and proper recordation of the interview unless it includes, or is supplemented by the applicant or the examiner to include, all of the applicable items required below concerning the substance of the interview.

A complete and proper recordation of the substance of any interview should include at least the following applicable items:

- 1) A brief description of the nature of any exhibit shown or any demonstration conducted,
- 2) an identification of the claims discussed,
- 3) an identification of the specific prior art discussed,
- 4) an identification of the principal proposed amendments of a substantive nature discussed, unless these are already described on the Interview Summary Form completed by the Examiner,
- 5) a brief identification of the general thrust of the principal arguments presented to the examiner,  
(The identification of arguments need not be lengthy or elaborate. A verbatim or highly detailed description of the arguments is not required. The identification of the arguments is sufficient if the general nature or thrust of the principal arguments made to the examiner can be understood in the context of the application file. Of course, the applicant may desire to emphasize and fully describe those arguments which he or she feels were or might be persuasive to the examiner.)
- 6) a general indication of any other pertinent matters discussed, and
- 7) if appropriate, the general results or outcome of the interview unless already described in the Interview Summary Form completed by the examiner.

Examiners are expected to carefully review the applicant's record of the substance of an interview. If the record is not complete and accurate, the examiner will give the applicant an extendable one month time period to correct the record.

### Examiner to Check for Accuracy

If the claims are allowable for other reasons of record, the examiner should send a letter setting forth the examiner's version of the statement attributed to him or her. If the record is complete and accurate, the examiner should place the indication, "Interview Record OK" on the paper recording the substance of the interview along with the date and the examiner's initials.

Continuation of Substance of Interview including description of the general nature of what was agreed to if an agreement was reached, or any other comments: agreed above claims and dependents would be allowable if accompanied by arguments that base reference Saylak et al equates degradation with an increase in conductivity instead of decrease as claimed in combination with other features of these claim. Atty also indicated new claim + possibly dependents to be added but examiner had not yet reviewed such claims (new claim 45 faxed later than 1st set and not noted by examiner before interview) so examiner did not indicate any decision to such claims. Copy of claims in proposed amendment faxed 11/19/07, 1-44, and claim 45 faxed 11/20/07 are attached. Claim 45 appears possibly restrictable by original presentation.

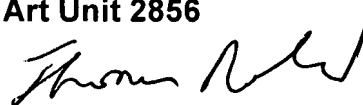
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tom Noland whose telephone number is (571) 272-2202. The examiner can normally be reached on weekdays from 9:00 to 5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Hezron E. Williams, can be reached on (571) 272-2208.

The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to 2800 Customer Service at (571) 272-2815.

**Thomas P. Noland**  
**Primary Examiner**  
**Art Unit 2856**



Nov. 20, 2007

**Watkins Patent Services***Patent Services, Mechanical, Electrical Design and Prototyping***Draft Amendments**

1. (currently amended) A method of determining degradation of a polymer, the method comprising the steps of:  
adding conductive particles to the polymer to form a conductive composite comprising a preselected weight percent of conductive particles;  
making an electrical connection with the conductive composite and measuring an electrical property of the conductive composite; and  
equating ~~the~~ a measured electrical property of the conductive composite, said measured electrical property consistent with a decrease in electrical resistivity with the electrical property of a previously-degraded sample of the conductive composite to determine the degradation of the polymer.
2. (previously presented) The method of claim 1 wherein the measured electrical property is electrical resistivity.
3. (previously presented) The method of claim 1 wherein the measured electrical property is electrical conductivity.
4. (previously presented) The method of claim 1 wherein the degradation of the polymer is mechanical degradation of the polymer.
5. (previously presented) The method of claim 4 wherein the mechanical property comprises a durometer of the polymer.
6. (previously presented) The method of claim 4 wherein the mechanical property comprises an elongation property of the polymer.
7. (previously presented) The method of claim 4 wherein the mechanical property comprises a hardness of the polymer.
8. (previously presented) The method of claim 4 wherein the mechanical property comprises a tensile strength of the polymer.

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9. (previously presented) The method of claim 4 wherein the mechanical property comprises a toughness of the polymer.
10. (previously presented) The method of claim 1 wherein the degradation of the polymer is a chemical degradation.
11. (previously presented) The method of claim 10 wherein the chemical degradation comprises a measure of oxidation of the polymer.
12. (previously presented) The method of claim 10 wherein the chemical degradation comprises a measure of a remaining amount of anti-oxidant added to the polymer.
13. (previously presented) The method of claim 1 wherein the previously degraded sample was degraded by an accelerated aging means.
14. (previously presented) The method of claim 13 wherein the accelerated aging means comprises aging in an environment elevated in temperature as compared to the normal operating temperature of the polymer.
15. (previously presented) The method of claim 13 wherein the accelerated aging means comprises aging in an elevated radiation environment.
16. (previously presented) The method of claim 13 wherein the accelerated aging means comprises aging in an elevated humidity environment.
17. (currently amended) A degradation sensor for a polymeric structure, the sensor comprising:  
a first quantity of conductive particles dispersed in a first portion of the polymeric structure to define a conductive composite portion, the first portion comprising less than a total polymer in the structure; and

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**Watkins Patent Services****Draft Amendments***Patent Services, Mechanical, Electrical Design and Prototyping*

a means for communicating an electrical measurement of the conductive composite to an electrical measurement apparatus; and

a means for correlating a decrease in said electrical measurement consistent with a decrease in resistivity to a degraded condition of said polymeric structure.

18. (previously presented) The degradation sensor of claim 17 wherein the means for communicating an electrical measurement of the conductive composite comprises a portion of the conductive composite disposed on an outside surface of the polymeric structure.

19. (previously presented) The degradation sensor of claim 17 wherein the means for communicating an electrical measurement of the conductive composite comprises a metallic conductor communicating with the conductive composite.

20. (previously presented) The degradation sensor of claim 17 wherein the means for communicating an electrical measurement of the conductive composite comprises an electromagnetic emitter.

21. (previously presented) The degradation sensor of claim 20 wherein the electromagnetic emitter is a radio frequency identification tag.

22. (previously presented) The degradation sensor of claim 17 wherein the conductive composite defines a filament disposed in the polymeric structure.

23. (previously presented) The degradation sensor of claim 17 wherein the conductive composite defines an extruded strip in the polymeric structure.

24. The degradation sensor of claim 17 wherein the conductive composite defines a plurality of portions of conductive composite, said plurality of portions of conductive composite being separated from each other by portions of polymer without said conductive particles.

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25. (currently amended) A polymeric structure comprising:  
a degradation sensor for the polymeric structure, the sensor comprising:  
a first quantity of conductive particles dispersed in a first portion of the polymeric structure to define a conductive composite portion, the first portion comprising less than a total polymer in the structure; and  
a means for communicating an electrical measurement of the conductive composite to an electrical measurement apparatus ; and  
a means for correlating a decrease in said electrical measurement consistent with a decrease in resistivity to a degraded condition of said polymeric structure.
26. (previously presented) The polymeric structure of claim 25 wherein the polymeric structure is the insulation of an electrical wire.
27. (previously presented) The polymeric structure of claim 25 wherein the polymeric structure is an electrical cable.
28. (previously presented) The polymeric structure of claim 25 wherein the polymeric structure is a pipe.
29. (previously presented) The polymeric structure of claim 25 wherein the polymeric structure is a building siding portion.
30. (previously presented) The polymeric structure of claim 25 wherein the polymeric structure is an aircraft composite structure.
31. (previously presented) The polymeric structure of claim 25 wherein the polymeric structure is a boat hull.
32. (withdrawn) A method of determining degradation of a first polymer, the method comprising the steps of:

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adding conductive particles to a second polymer to form a conductive composite comprising a preselected weight percent of conductive particles;  
making an electrical connection with the conductive composite and measuring an electrical property of the conductive composite; and  
equating the measured electrical property of the conductive composite with the electrical property of a previously-degraded sample of the conductive composite to determine the degradation of the first polymer.

33. (withdrawn) The method of claim 32 wherein the measured electrical property is electrical resistivity.

33. (withdrawn) The method of claim 32 wherein the measured electrical property is electrical conductivity.

34. (withdrawn) The method of claim 32 wherein the degradation of the first polymer is a mechanical degradation.

35. (withdrawn) The method of claim 34 wherein the mechanical degradation is a degradation of a mechanical property selected from the group of a strength property, a hardness property, a density property, a dimensional property, and an elongation property.

36. (withdrawn) A condition-sensing electrical cable comprising a combination of:  
an insulation component made of a first polymeric material; and  
an age sensor comprising a first quantity of conductive particles dispersed in a second polymeric material to define a conductive composite portion disposed within the cable,  
and;  
a means for communicating an electrical measurement of the conductive composite portion to an electrical measurement apparatus.

37. (withdrawn) A condition-sensing building component comprising a combination of:

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a structural portion made of a first polymeric material; and  
an age sensor comprising a first quantity of conductive particles dispersed in a second polymeric material to define a conductive composite portion disposed in proximity to the structural portion, and;  
a means for communicating an electrical measurement of the conductive composite portion to an electrical measurement apparatus.

38. (withdrawn) A condition-sensing vehicle comprising a combination of:  
a structural component made of a first polymeric material; and  
an age sensor comprising a first quantity of conductive particles dispersed in a second polymeric material to define a conductive composite portion disposed in proximity to the structural component, and;  
a means for communicating an electrical measurement of the conductive composite portion to an electrical measurement apparatus.

39. (previously presented) A method of determining degradation of a polymer, the method comprising the steps of:  
adding conductive particles to the polymer to form a conductive composite comprising a preselected weight percent of conductive particles;  
making an electrical connection with the conductive composite and measuring a resistivity of the conductive composite; and  
equating the resistivity of the conductive composite with the resistivity of a previously-degraded sample of the conductive composite to determine the degradation of the polymer;  
wherein a decrease in a resistivity correlates to an age degraded state of the polymer.

40. (previously presented) The method of claim 39 wherein said degraded state of the polymer is a decrease in specific volume with age.

41. (previously presented) The method of claim 39 wherein said degraded state of the polymer is an increase in density of the polymer with age.

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42. (previously presented) The method of claim 39 wherein said degraded state of the polymer is a reduction of elongation at break with age.

43. (previously presented) The method of claim 39 wherein said degraded state of the polymer is a loss of volatile fractions with age.

44. (previously presented) The method of claim 39 wherein said equating the resistivity of the conductive composite with the resistivity of a previously-degraded sample of the conductive composite is performed at several temperatures and Arrhenius methodology is used to predict the remaining life of the polymer.

**Watkins Patent Services**

*Patent Services, Mechanical, Electrical Design and Prototyping*

**Draft Amendments**

**November 20, 2007**

**To: T. Koland  
Art Unit 2856**

**From: Ken Watkins**

**Ref: 10/506,518  
Draft amendment**

Examiner Noland;

Attached draft claim amendments for the subject application.

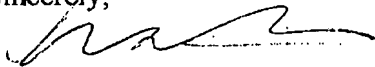
45. (new) A method of determining degradation of a polymer, the method comprising the steps of:

measuring the resistivity of a composite sensor made of said polymer and a conductive filler;

equating a reduction of resistivity of said composite sensor to a degraded state of said polymer.

Please contact me if you have any questions.

Sincerely,



Kenneth Watkins  
Reg. No 37466

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